then indicated the laws of the formation of intra-ocular lesions depending on diseases of the brain, spinal marrow, and meninges.

These laws are four in number. 1. Whenever the circulation is obstructed in the cranium, or in the sinuses or meningeal veins, in consequence of compression through distension of ventricles distended by serosity or any other cause, an arrest of the venous circulation occurs which produces swelling, hyperæmia, and œdema of the papilla, varicosity of the veins, and sometimes hemorrhage in the eye. 2. When a tumour with encephalitis, or partial encephalitis, is present, a descending phlegmasia occurs which brings on sclerosis of the optic nerve, exudations which imprison the papilla, and eventually produce atrophy. 3. If it be the spinal marrow which is diseased by anterior or posterior sclerosis, since that organ, on account of its relations with the great sympathetic nerve, acts on the eye, papillary hyperæmia of the eye results, which in time brings on atrophy. This is what is seen in locomotor ataxy. 4. Finally, in all diatheses and in poisonings, when the whole organism suffers, the eye suffers like the rest of the body, and certain forms of neuritis or choroiditis result. After this preamble, M. Bouchut, by the aid of his luminous projection, showed on the wall specimens of all the ocular lesions produced by cerebo-spinal diseases. He showed the forms of spinal neuritis and those which result from locomotor ataxy, the neuritis and neuro-neuritis, produced by tuberculous, typhoid, or rheumatismal meningitis, by cerebral hemorrhage and softening, by hydrocephalus and thrombosis of the sinuses of the dura mater, by chronic encephalitis, and encephalitis resulting from cardiac disease, by tumours of the brain, tuberculosis, syphilis, albuminuria, leucocythæmia, etc., and finally the neuritis resulting from paralysis of the sixth pair, in consequence of certain kinds of epilepsy, hallucination, contusion of the brain, etc.

In this way a hundred images were shown, the most important of those which have been figured since M. Bouchut commenced his researches. He has thus opened a new road to the diagnosis of cerebro-spinal diseases.—*London Med. Record*, April 14, 1875.

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51. *Significance of Congestion Papilla, or Choked Disc, in Intra-cranial Disease.*—Dr. H. R. Swanzy, in an article on this subject (*Dub. Journ. Med. Science*, March, 1875), says: "Every observer admits that intra-cranial tumours give rise to congestion papilla, and I think most of them would at least allow that it is the most frequent cause of this appearance. The only wonder is that congestion papilla is not found in every such case, if the accepted mode of its production be the true one. When the tumour is small, we may imagine that the disturbance produced by it is inadequate to give rise to the choked disc; but still cases of it are recorded where the new growth within the cranium was comparatively small, while enormous tumours of the brain are every day coming under our notice, in which not only is there no congestion papilla present, but often also no other diseased condition of the optic nerve. No satisfactory explanation of this apparent anomaly has as yet been given. Possibly it may depend upon individual differences in the anatomical relations of the lymphatic space and optic nerve, which are yet to be ascertained. Hermann Schmidt puts forward the hypothesis that in some cases, by compression at the foramen opticum, either from a tumour or otherwise, the communication between the arachnoid space and the sheath of the optic nerve may be cut off, and thus the transport of the fluid into the latter prevented. I have always inclined to an opinion that the rate of growth of a tumour might be the ruling factor in this respect. If the tumour increases in size very slowly, the parts may be enabled to accommodate themselves to the pressure, or, by the gradual absorption of brain substance, there might actually be no increase of intra-cranial pressure produced. On the other hand, if the tumour from the beginning grows very rapidly, or, although growing slowly at first, if it afterwards advances quickly, we can understand that, for converse reasons, it would be more likely to cause congestion papilla."

He concludes that "while true congestion papilla is not pathognomonic of intra-cranial tumours, it is extremely rare as a symptom of any other intra-cranial disease. It has been observed in a few cases of meningitis, chiefly in children, so that its value as a symptom of cerebral tumour is even greater in adults than in young people."

52. *Appearance of the Optic Nerve during Acute Disease of the Brain.*—In the *Klinische Monatsblätter* for December, 1874, will be found an interesting paper which was read at the last meeting of the Ophthalmological Congress, in which Professor MANZ sums up at some length the result of his observations with the ophthalmoscope during the various forms of disease of the brain and its membranes. The phenomena which he had observed were hyperæmia of the optic disk, engorgement and tortuosity of the retinal veins, and optic neuritis. As the author had nothing new or of special interest to relate with reference to the last of these conditions, his remarks are confined to the former two only.

With regard to hyperæmia of the disk, meaning by that term the condition in which it appears unnaturally pink, in consequence of overfulness of its arterial capillaries, he has come to the conclusion that it is an uncertain and a most unreliable symptom; and his reasons for doing so are probably sufficient. It can be shown that the colour or tint of the disk may be materially modified by the state of the circulation within the carotid vessels, quite independently of any general hyperæmia of the cerebral contents; and the peculiarity of the arrangement of the bloodvessels around the entrance of the optic nerve, by which a communication is established between the retinal vessels and those of the choroid, explains the occurrence of hyperæmia of the disk in cases where there is only a disturbance of the choroidal circulation, and where there is no reason whatever to suspect any intracranial mischief. It is highly probable, then, that the colour of the disk may change frequently in the same eye at different times; and as the variation may arise in several ways, it is obvious that hyperæmia of the disk can be no very certain index of a similar condition within the brain or its envelopes.

The engorgement of the retinal veins, however, in Professor Manz's opinion, is much more indicative of serious mischief. In the majority of instances the venous congestion was seen to be associated with a hazy and apparently œdematous condition of the retina to some extent; these conditions, when combined, may be regarded as pathognomonic of some interference with the cerebral circulation; but in many instances it is uncertain whether the veins are engorged or not, as they no doubt vary in size in the same individual. It might be supposed that the appearance of the retinal vessels would be materially influenced by the condition of the circulation generally, but Manz has not found this to be the case in the eyes of those who have come under his observation; he has not, for instance, found it so in the eyes of those who have been extremely anæmic or chlorotic, nor in the eyes of epileptics. He believes that the venous congestion and the opacity of the retina may be explained on the assumption that there has been some impediment to the circulation through the lymphatics, and that the lymph-canals, which are formed by the sheaths of the optic nerve, and which, according to the researches of Schwalbe, communicate on the one hand with the lymphatic spaces within the eyeball, and on the other hand with the subarachnoid spaces, become distended with fluid, and increased in size so as to press upon the surrounding veins, and to prevent the free escape of the venous blood from the retina and from the optic nerve. It was admitted on all hands that the explanation was plausible, and so far true in that this distension of the sheath of the nerve could occur; but it was urged at the same time that it was almost impossible to say when this distension had or had not occurred, and the *post-mortem* examinations which had as yet been made with reference to this point, had not determined what was the normal size or capacity of the lymph-spaces in question.—*London Med. Record,* May 12, 1875.

53. *Ophthalmoscopic Examination in Cerebral Disease in Children.*—In the *Jahrbuch für Kinderheilkunde,* Dr. L. HEINZEL contributes a series of observations on the diagnostic value of ophthalmoscopic examination in cases of intracranial disease in children. His conclusions are based upon a tabulated